

Response
Application No. 10/587,391
Attorney Docket No. 062658

AMENDMENTS TO THE CLAIMS

Listing of claims:

This listing of claims replaces all prior versions of claims in the application.

WHAT IS CLAIMED IS CLAIMS:

We Claim:

1 (Currently Amended). A servo control apparatus for controlling a controlled object in response to a command, comprising:

a controller which receives a target command increment value which is an increment in a sampling period of a target command, and sends a control input to the controlled object such that the target command which is an integrated value of the target command increment value becomes coincident with an output of the controlled object; and

a compensation signal arithmetic unit which receives the target command increment value as an input, generates a compensation signal for decreasing a ~~deviation~~ an error of the target command and the output of the controlled object at the time of acceleration/deceleration, and sends the compensation signal to the controlled object.

2 (Original). The servo control apparatus as recited in claim 1, wherein the compensation signal arithmetic unit includes an inverse transfer function unit for receiving the target command increment value, the inverse transfer unit having an inverse transfer function characteristic of any standard low-pass filter, a subtracter which subtracts the target command increment value from an output of the inverse transfer function unit, and a multiplier which multiplies an output of the subtracter by an adjustment gain.

3 (Original). The servo control apparatus as recited in claim 1, wherein the compensation signal arithmetic unit includes a differentiator which differentiates the target command increment value, and a multiplier which multiplies an output of the differentiator by an adjustment gain.

4 (Original). The servo control apparatus as recited in claim 3, wherein the compensation signal arithmetic unit is equipped with a phase adjuster for performing a phase adjustment of an output of the multiplier.

5 (Original). The servo control apparatus as recited in claim 2, wherein the compensation signal arithmetic unit is equipped with a phase adjuster performing a phase adjustment at at least one of input sides of the subtracter.

6 (Original). The servo control apparatus as recited in claim 1, further comprising a phase adjuster which sends a signal in which a phase adjustment of the target command increment value is performed to the controller.

7 (Currently Amended). The servo control apparatus as recited in claim 1, wherein the controller is a predictive controller which determines the control input such that an evaluation function on ~~a deviation~~ an error predicted value at a future time, ~~a deviation~~ an error, a control input, and a control input increment value becomes minimum.

8 (Original). The servo control apparatus as recited in claim 1, wherein the controller is a position controller which adjusts the control input so that the target command obtained by integrating the target command increment value becomes coincident with the output of the controlled object.

9 (Original). The servo control apparatus as recited in claim 1, wherein the controlled object includes a motor and a speed controller for controlling its speed, wherein the controller gives a speed command as a control input to the speed controller, and wherein the compensation signal arithmetic unit gives a feed-forward signal for compensating speed or torque as a compensation signal to the speed controller.

10 (Original). The servo control apparatus as recited in claim 1, wherein the controlled object includes a motor and a torque controller for controlling torque of the motor, wherein the controller gives a torque command to the torque controller as a control input, and wherein a compensation signal arithmetic unit gives a feed-forward signal for compensating torque as a compensation signal to the torque controller.

11 (Original). The servo control apparatus as recited in claim 9 or 10, wherein the motor is a straight-moving type motor.

12 (Currently Amended). The servo control apparatus as recited in any one of claims ~~4 to 6~~ 4, 5, 6 and 15, wherein the phase adjuster is any one of a low-pass filter, a high-pass filter, and a delay device for delaying a signal by a time specified by a phase adjustment parameter.

13 (Original). The servo control apparatus as recited in claim 2, wherein the standard low-pass filter is a recursive filter or a non-recursive filter.

14 (Currently Amended). The servo control apparatus as recited in claim 8, wherein the position controller decides the control input by the target command obtained by integrating the target command increment value, any one of proportionality, integral and differential operation of ~~a deviation~~ an error with a position of the motor, or a combination thereof.

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15 (New). The servo control apparatus as recited in claim 2, wherein the compensation signal arithmetic unit is equipped with a phase adjuster for performing a phase adjustment of an output of the multiplier.